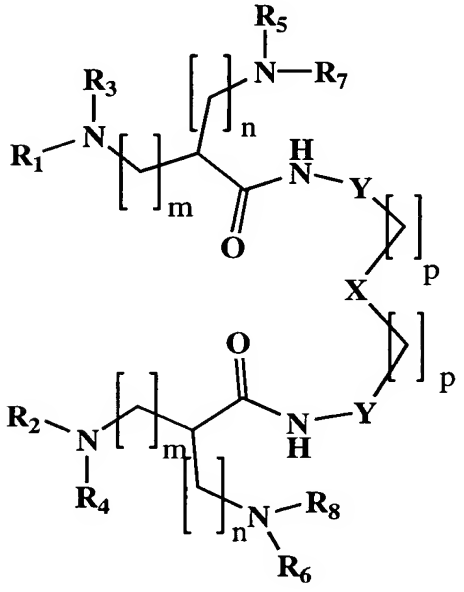
Amendments to the claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended): A diaminoacid-polyamine:peptide based gemini compound having a diaminoacid-polyamine or a diaminoacid-aminoacid-polyamine backbone and

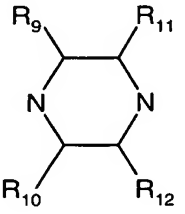
conforming to the general structure of formula (I):



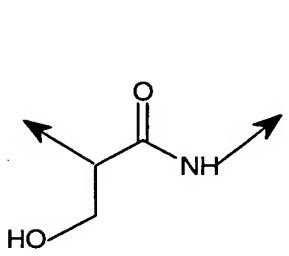
(I)

where:
m = 0 to 6;
n = 0 to 7;
p = 0 to 6; and where

X = a bond, CH_2, $(CH_2)_2$, $NH(CH_2)qNH$ where q = 2 to 6, or



where R_9 to R_{12}, which can be the same or different, are selected from ~~H, O or~~ and C_rH_{2r+1}, where r = ~~0~~ 1 to 6 ~~with the proviso that when R_9 and R_{12} are O, or when R_9 and R_{11} are O, then R_{10} and R_{11} or R_{10} and R_{12}, respectively, are H~~; and where Y = a bond, CH_2,



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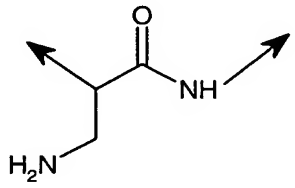

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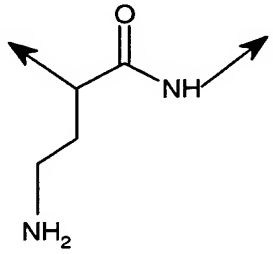

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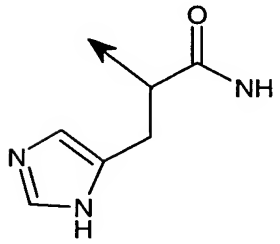

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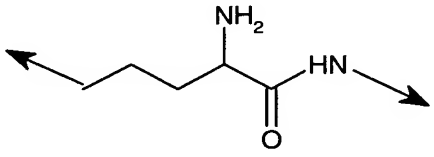
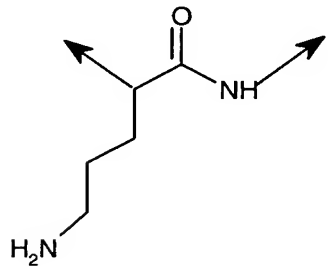


, or


;

and where R_3, R_4, R_5, R_6, R_7 and R_8 are hydrogen and R_1 and R_2 are saturated or unsaturated hydrocarboxyl groups having up to 24 carbon atoms and linked to the diaminoacid-polyamine backbone by an amide bond;

or

where R_3, R_4, R_5 and R_6 are hydrogen, R_1 and R_2 are saturated or unsaturated hydrocarboxyl groups having up to 24 carbon atoms and linked to the diaminoacid-polyamine backbone by an amide bond, and where R_7 and R_8, which may be the same or different, are peptide groups ~~formed from one or more amino acids linked together by amide (CONH) bonds, and further~~ linked to the diaminoacid-polyamine backbone by

amide bonds, in a linear or branched manner, wherein the peptide groups ~~having~~ are represented by the general formula (II):

$$-(A1)_{p1}-\underset{\displaystyle (A4)_{p4}}{\underset{|}{(A2)_{p2}}}-(A3)_{p3} \qquad \text{(II)}$$

where the values for p1 and p2, which may be the same or different, are from ~~0~~ 1 to 5~~,~~ ~~preferably 1~~;

and the values for p3 and p4, which may be the same or different, are from 0 to 5~~,~~ ~~preferably 0~~;

A1, A3 and A4, which may be the same or different, is an amino acid selected from the group consisting of serine, lysine, ornithine, threonine, histidine, cysteine, arginine and tyrosine; and

A2 is an amino acid selected from the group consisting of lysine, ornithine and histidine;

or

a pharmaceutically acceptable salt thereof.~~,~~

2. (Currently amended): A compound according to claim 1 wherein ~~that is symmetrical, that is~~ R_1 and R_2 are the same as each other, R_3 and R_4 are the same as each other, R_5 and R_6 are the same as each other, R_7 and R_8 are the same as each other.

3. (Currently amended): A compound according to ~~claims~~ claim 1 ~~or 2~~ wherein A1 is lysine, serine or threonine, and A3 and A4 are lysine, ornithine, histidine or arginine.

4. (Currently amended): A compound according to ~~any of claims 1 to 3~~ claim 1 wherein the hydrocarboxyl group is selected from the group consisting of:

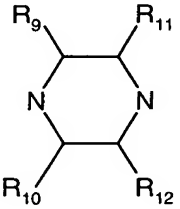
$-C(O)(CH_2)_{10}CH_3$
$-C(O)(CH_2)_{12}CH_3$
$-C(O)(CH_2)_{14}CH_3$
$-C(O)(CH_2)_{16}CH_3$
$-C(O)(CH_2)_{18}CH_3$
$-C(O)(CH_2)_{20}CH_3$
$-C(O)(CH_2)_7CH=CH(CH_2)_5CH_3$ natural mixture
$-C(O)(CH_2)_7CH=CH(CH_2)_7CH_3$ natural mixture
$-C(O)(CH_2)_7CH=CH(CH_2)_5CH_3$ Cis
$-C(O)(CH_2)_7CH=CH(CH_2)_7CH_3$ Cis
$-C(O)(CH_2)_7CH=CH(CH_2)_5CH_3$ Trans
$-C(O)(CH_2)_7CH=CH(CH_2)_7CH_3$ Trans
$-C(O)(CH_2)_7CH=CHCH_2CH=CH(CH_2)_4CH_3$
$-C(O)(CH_2)_7(CH=CHCH_2)_3CH_3$
$-C(O)(CH_2)_3CH=CH(CH_2CH=CH)_3(CH_2)_4CH_3$
$-C(O)(CH_2)_7CHCH(CH_2)_7CH_3$
$-C(O)CHCHOH(CH_2)_2CH_3$

~~or~~ and

$-C(O)(CH_2)_{22}CH_3$.

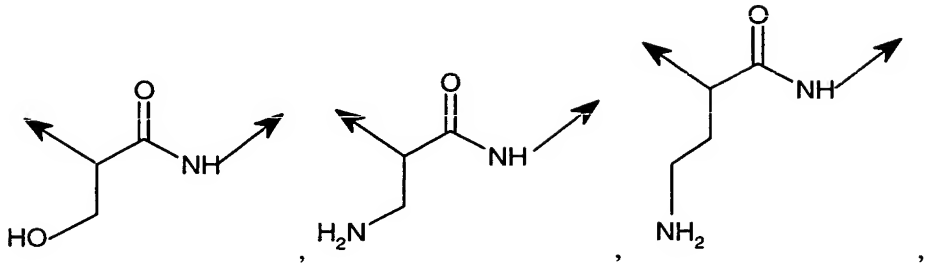
5. (Currently amended): A compound according to ~~any one of claims 1 to 4~~ claim 1 where m is 0, n is 2 to 4, X is (CH_2) or $(CH_2)_2$, Y is a bond and p is 0 to 4.

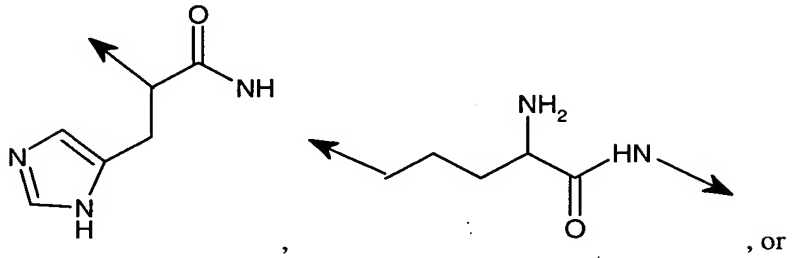
6. (Currently amended): A compound according to ~~any one of claims 1 to 4~~ claim 1 where m is 0, n is 2 to 4, X is $NH(CH_2)qNH$, where q is 2 to 5, Y is a bond and p is 2 to 5.

7. (Currently amended): A compound according to ~~any one of claims 1 to 4~~ claim 1 where m is 0, n is 2 to 4, X is 

, where R_9, R_{10}, R_{11} and R_{12} are all H, Y is a bond and p is 2 to 5.

8. (Currently amended): A compound according to ~~any one of claims 1 to 4~~ claim 1 where m is 0, n is 2 to 4, X is (CH_2) or $(CH_2)_2$, p is 0 to 4 and Y is





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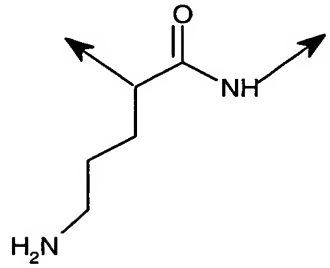
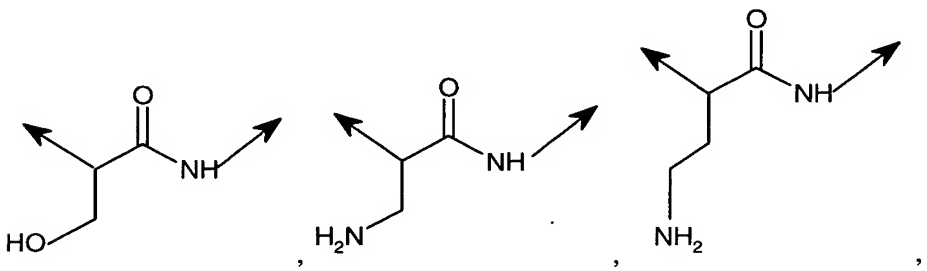
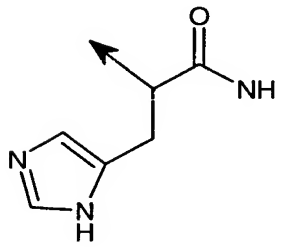


9. (Currently amended): A compound according to ~~any one of claims 1 to 4~~ claim 1 where m is 0, n is 2 to 4, X is $NH(CH_2)qNH$, where q is 2 to 5, p is 2 to 5 and Y is





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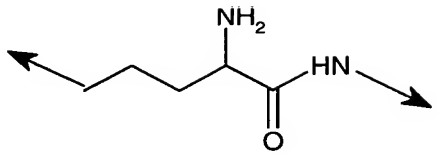

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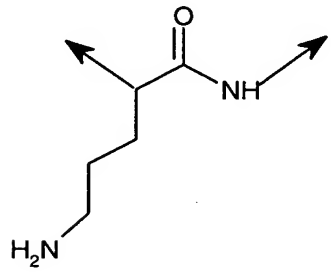

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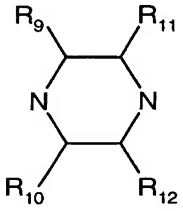
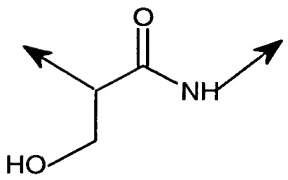
10. (Currently amended): A compound according to ~~any one of claims 1 to 4~~ claim 1 where m is 0, n is 2 to 4, X is



, where R_9, R_{10}, R_{11} and R_{12} are all H, p is 2 to 5 and Y is



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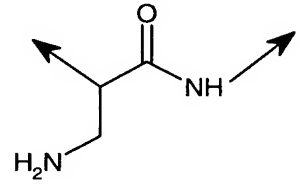

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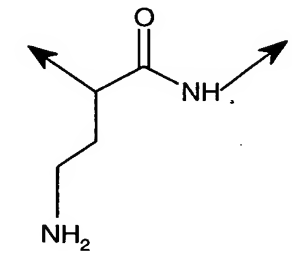

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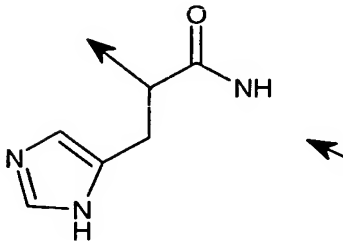

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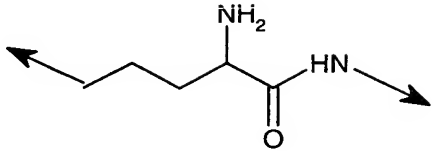

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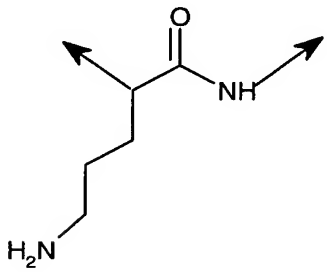
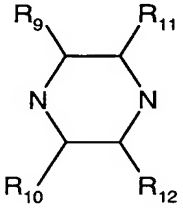
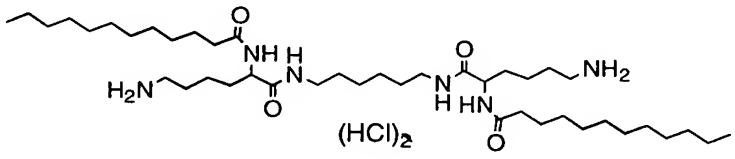


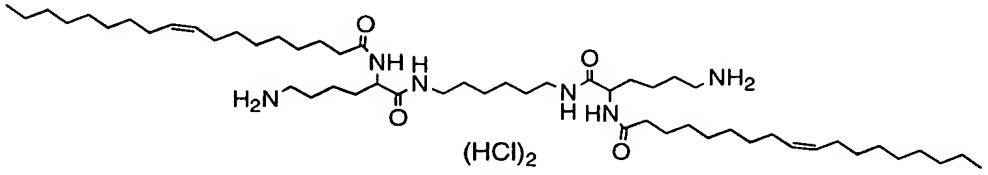
11. (Currently amended): A compound according to ~~any one of claims 1 to 4~~ claim 1 where X is 

, Y is a bond, p is 1 to 6 and n is 1 to 7.

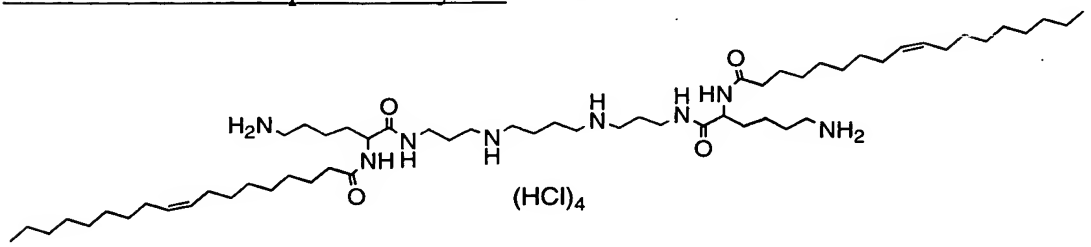
12. (Currently amended): ~~The compound GSN 11 of~~ A salt of the compound of Claim 1 which is represented by the formula:



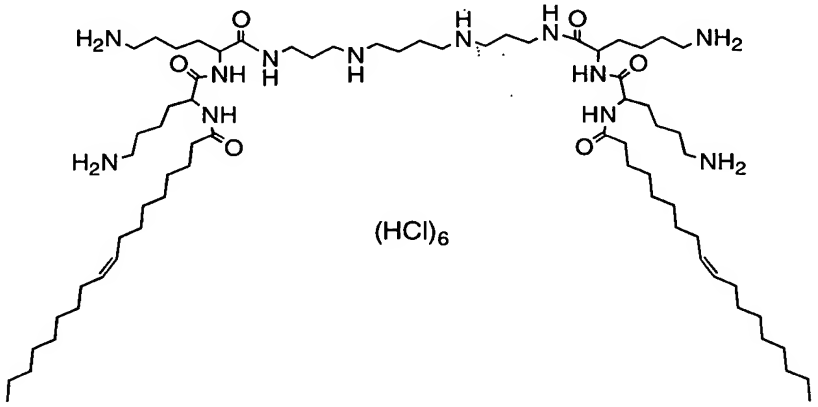
13. (Currently amended): ~~The compound GSN 14 of~~ A salt of the compound of Claim 1 which is represented by the formula:



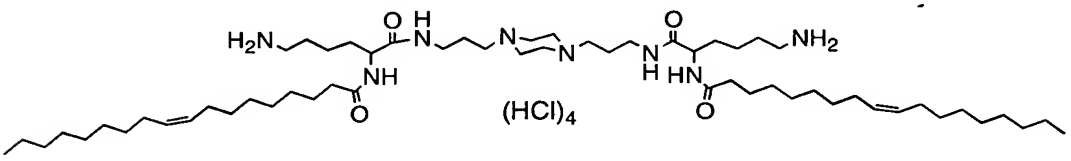
14. (Currently amended): ~~The compound GSC 102 of~~ A salt of the compound of Claim 1 which is represented by the formula:



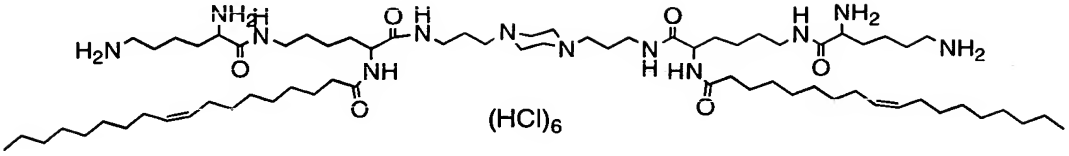
15. (Currently amended): ~~The compound GSC 157~~ A salt of the compound of Claim 1 which is represented by the formula:



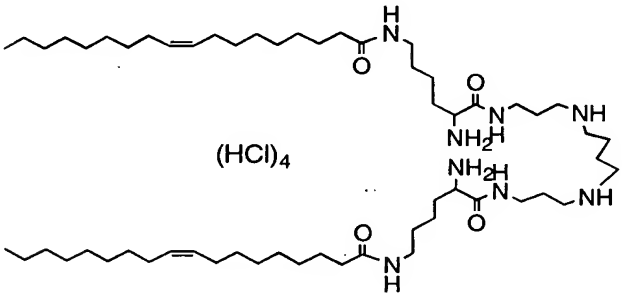
16. (Currently amended): ~~The compound GSC170 of~~ A salt of the compound of Claim 1 which is represented by the formula:



17. (Currently amended): ~~The compound GSC 184 of~~ A salt of the compound of Claim 1 which is represented by the formula:



18. (Currently amended): ~~The compound GSC101 of~~ A salt of the compound of Claim 1 which is represented by the formula:



19. (canceled):

20. (Currently amended): The ~~use~~ method of ~~a diaminoacid-polyamine:peptide-based gemini compound according to~~ claim ~~19~~ 31 wherein the compound ~~is used in combination with one or more supplements selected from the group consisting of~~ further includes a supplement selected from the group consisting of:
(i) a neutral carrier; or
(ii) a complexing reagent.

21. (Currently amended): The ~~use~~ method according to claim 20 wherein the neutral carrier is dioleyl phosphatidylethanolamine (DOPE).

22. (canceled):

23. (Currently amended): The ~~use~~ method according to claim 20 wherein the complexing reagent is a peptide comprising mainly basic amino acids.

24. (Currently amended): The ~~use~~ method according to claim 23 wherein the peptide consists of basic amino acids.

25. (Currently amended): The ~~use~~ method according to claim 23 ~~or 24~~ wherein the basic amino acids are selected from the group consisting of lysine, ornithine, and arginine.

26. (canceled):

27. (canceled):

28. (canceled):

29. (canceled):

30. (Original): A process for preparing diaminoacid-polyamine-based gemini compounds of claim 1 which process comprises the coupling of a succinimidate ester of a diaminoacid linked to its α or terminal amino group to an hydrocarboxyl chain to a polyamine linker using potassium carbonate as a base in a mixture of tetrahydrofuran and water as solvents.

31. (new): A method of enabling transfection of DNA or RNA or analogs thereof comprising the step of administering an effective amount of a compound of Claim 1, or a pharmaceutically acceptable salt thereof, to a culture to facilitate transfer of the DNA or RNA or analogs thereof into a eukaryotic or prokaryotic cell.

32. (new): A method of facilitating transfer of a polynucleotide or anti-infective compound into a prokaryotic or eukariotic organism comprising the step of administering an effective amount of a compound of Claim 1 or a pharmaceutically acceptable salt thereof to the organism to treat infection.